good shape and apparently healthy at the time of capture.

I wish to acknowledge the constructive criticism offered by Dr. G. L. Voss.

HERMAN E. KUMPT

Marine Laboratory,
1 Rickenbacker Causeway,
Miami 49, Florida.

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Delayed Birth in Marsupial Macropods—the Euro, the Tammar and the Marloo

THE first anecdotal evidence for delayed birth in macropods was given by Carson¹ in 1912. However, the phenomenon of delayed birth in the quokka (*Setonix brachyurus*) and the tammar (*Protemnodon eugenii*) was first investigated in detail by Sharman²⁻⁴.

During a study of the euro (*Macropus robustus*) undertaken by the University of Western Australia we have found many delayed blastocysts lying free in the uteri while the females had 'joeys' in the pouch. The blastocysts were located by flushing out the uteri with physiological saline as described by Sharman². Following this discovery an attempt was made to initiate a delayed birth in an experimental manner. A female euro obtained from the local zoological gardens was found to have a 28-gm. 'joey' in the pouch. This 'joey' was removed and the female isolated from further contact with males. 36 days later examination of this animal revealed a pouch young attached to the teat. Examination on the thirty-fourth day had shown no pouch young.

Previous work by Sharman⁴ showed that tammar contain delayed blastocysts, and he has given anecdotal evidence which supported a delayed birth mechanism in this species. We have also produced a delayed birth pouch young in the tammar by removing a 0.70-gm. 'joey' and segregating the female from all males. Unfortunately, initial examination of the pouch was made 62 days after the removal of the first 'joey'.

During the course of the present work on marsupial macropods we have found blastocysts lying free in the uteri of two marloos (*Macropus rufus*) which both had 150-gm. 'joeys'. Apart from Carson's¹ initial observation this appears to be the only reported evidence for delayed birth in this species.

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R. M. SADLEIR
J. W. SHIELD

Zoology Department,
University of Western Australia,
Nedlands.

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ENTOMOLOGY

Time of Feeding in Relation to the Toxicity of a Stomach Poison to the Desert Locust

PEARSON¹ first showed that the stomach toxicity of dieldrin to fifth-instar hoppers (nymphs) of the desert locust (*Schistocerca gregaria* Forsk.) was increased by a period of starvation after treatment and suggested that this was due to variation in the rate of passage of the poison through the gut. We have confirmed and extended his observations and are directing attention to them because there appears to be little published information on the effects of starvation on the toxicity of stomach poisons to insects² although attention has been given to the effects of the diet fed to insects before they are used for experimental purposes³.

When insects are fed with poisons applied by methods (for example, the poisoned sandwich method) other than those utilizing a poisoned medium there are usually time intervals between removal of the insects from their normal food, consumption of the poison, and resumption of normal feeding. In practice the insects are usually starved before an experiment, in order that they will readily accept proffered food and/or poison². When the time-intervals are variable and of the duration of several hours they can affect the rate of passage through the gut of small quantities of food such as those that comprise a 'sandwich' containing poison.

A batch of fifth-instar nymphs, 4-7 days after moulting, was randomly divided into three groups. Two of the groups were deprived of food for 24 hr. Each insect in all three groups was then fed a small quantity of fluorescent powder ('phosphorescent powder, green', supplied by Rex Campbell, Ltd.) applied in gum to a small piece of grass. Immediately after eating this material two of the groups, including one of those previously starved, were then supplied with abundant fresh grass. The three groups of insects therefore received different treatments: group I was starved before dosing and fed after, group II was fed before and after, while group III was starved before and after. The faecal pellets produced by each group in successive hours after ingestion of the indicator substance were counted. Each pellet was then broken up in about 1 ml. of water and examined in ultra-violet light, when any granules of the indicator present were clearly visible. The results obtained are shown in Table 1.

Table 1. TOTAL NUMBER OF FAECAL PELLETS AND NUMBER CONTAINING INDICATOR AT DIFFERENT TIMES AFTER DOSING (PER GROUP OF 10 HOPPERS)

Treatment group	Hours after dosing				
	0-1	1-2	2-3	3-4	5-6
I	7/19	23/31	14/30	18/32	5/36
II	*	2/22	8/18	15/16	16/30
III	0/3	0/3	0/4	3/3	7/7

* Owing to difficulty in making these insects feed, no estimate can be given for this period.

It will be seen from Table 1 that the proportion of pellets containing the indicator depends on the treatment given. However, the quantity of indicator substance in each pellet was very variable, and rough quantitative estimates were made visually of the amount lost per hour. It was estimated that 80